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ABSTRACT

Laws aimed at alcohol-impaired driving have been shown to change behavior in ways that reduce the problem. Alcohol education and public information programs, in contrast, rarely result in short-term behavior change. In part, this is because drinking, and combining drinking with driving, are lifestyle behaviors shaped and supported by many ongoing social forces, and they are not readily amenable to change through brief, one-time education/public information efforts. Moreover, those who contribute most to the problem have characteristics that make them least susceptible to behavior change through educational programs. However, education and public information programs have an important role to play in combating alcohol-impaired driving. They can provide support and impetus for passing laws; transmit knowledge about the provisions and penalties of laws in ways that increase their deterrent effect; and generate public support for law enforcement programs. Greater attention to educating and informing policy and decision makers, rather than at-risk individuals, is needed. (Contains 45 references.) (Author)

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The Contribution of Education and Public Information to Reducing Alcohol-Impaired Driving

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May 1994

INSURANCE INSTITUTE FOR HIGHWAY SAFETY

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ABSTRACT

Laws aimed at alcohol-impaired driving have been shown to change behavior in ways that reduce the problem. Alcohol education and public information programs, in contrast, rarely result in short-term behavior change. In part, this is because drinking, and combining drinking with driving, are lifestyle behaviors shaped and supported by many ongoing social forces, and they are not readily amenable to change through brief, one-time education/public information efforts. Moreover, those who contribute most to the problem have characteristics that make them least susceptible to behavior change through educational programs. However, education and public information programs have an important role to play in combating alcohol-impaired driving. They can provide support and impetus for passing laws; transmit knowledge about the provisions and penalties of laws in ways that increase their deterrent effect; and generate public support for law enforcement programs. Greater attention to educating and informing policy and decision makers, rather than at-risk individuals, is needed.

LAWS AND BEHAVIOR CHANGE

Most of the demonstrable gains in changing behavior in ways that will reduce motor vehicle related injuries have come through federal and state laws and their application. The best examples are those where the outcome of interest is readily observable and measurable, such as seat belt use, motorcycle helmet use, or vehicle speeds. When seat belt or helmet use laws are introduced, or when the legal maximum speed limit is changed, the effect on the relevant behavior is immediate and dramatic (Williams, Wells, and Lund, 1987; Lund, Williams, and Womack, 1987; Freedman and Esterlitz, 1990). For example, on the day British Columbia's seat belt use law went into effect, belt use was 30 percentage points higher than it was 24 hours earlier (Williams and Robertson, 1979). There are no such instant measures readily available pertaining to alcohol-impaired driving, but minimum alcohol purchase age laws, administrative license suspension laws, and other laws have all had demonstrable effects in reducing this behavior and/or its consequences (General Accounting Office, 1987; Zador et al., 1989).

EDUCATION AND BEHAVIOR CHANGE

In contrast, educational or public information programs have had little success in achieving short-term behavior change related to motor vehicle injury, although that is usually an explicitly stated or implicit goal of such programs. This includes both educational programs designed to influence alcohol use, as well as those more concerned with the combination of alcohol use and driving. In regard to formal alcohol education programs for the general public, a tremendous number and variety of educational, largely school-based, programs have been tried in an effort to reduce drinking, or driving after drinking. There have also been many public information/mass media campaigns addressed to the general public. The bulk of these programs have not been evaluated in ways that would allow their effect on behavior to be adequately determined. But reviewers of the literature are in agreement that the available evidence is not encouraging. According to one review of programs aimed at drinking and driving, "There is little evidence to show that public information and education campaigns change either attitudes or behavior" (National Highway Traffic Safety Administration, 1984, p. 77). Klitzner (1985), reviewing school based programs encouraging youth not to combine drinking and driving, states, "Research to date has failed to demonstrate the effectiveness of public information

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campaigns (p. 8). Moskowitz (1989) concludes "... educational programs have been largely ineffective in preventing substance use or abuse" (p. 69) and adds that "... the effects of mass media campaigns appear similar to those of educational programs" (p. 74).

Many alcohol education programs have been unsophisticated in terms of applying behavior change principles. This is true not only of programs popular in the 1960s and 1970s that stressed (and in some cases exaggerated) long-term problems associated with alcohol use but also of some more current programs as well (see Klitzner, 1985). Moskowitz (1989) notes, "... most prevention programs have employed educational approaches in an effort to influence attitudes toward drinking, thereby expecting to influence patterns of alcohol consumption and associated behaviors" (p. 67). However, he goes on to point out, "with regard to alcohol or other drug use, there is little empirical support for the causal links implied by the knowledge/attitude models" (p. 68).

More recent work on health behavior echoes this conclusion. In a study of five health behaviors that included alcohol use and drunk driving, it was noted that "many intervention programs include attitude change as an important element of health-behavior change. In addition, previous research ... has shown significant cross-sectional correlations between attitudes and behavior, suggesting that attitudes may be important precursors of health-related behavior. However, the most general conclusion from the present longitudinal results is that ... attitude was neither a consistent nor strong predictor of the health behaviors we assessed" (Stacy, Bentler, and Flag, 1994, p. 81).

There have been some sophisticated alcohol education programs based on social learning and communication theory principles applied to alcohol and other health behaviors, but these ventures have also had limited success in altering reported alcohol use or its consequences. Programs utilizing techniques such as social skills/peer pressure resistance, decision making training, and so forth either have had no effect on alcohol-related behavior or, in a few cases, have had short-term positive effects that dissipate after a few weeks or months (see, e.g., Ellickson, Bell, and McGuigan, 1993; Dielman, et al., 1989; Hansen, Malotte, and Fielding, 1988; Ellickson and Bell, 1990).

This review of educational programs is based on those that attempt to influence drinking behavior, such as by promoting abstinence or responsible drinking (including no driving after drinking). It does not cover programs that do not emphasize drinking behavior, and are primarily concerned with separating drinking from driving, such as designated driver programs. Scientific evidence as to whether designated driver programs reduce alcohol-impaired driving is not yet available, but concerns about whether such programs encourage drinking have legitimately been raised (see DeJong and Wallack, 1992), and a recent survey of college students about the use of this

technique has revealed some negative aspects including reports of increased drinking by passengers (Knight, Glascoff, and Rikard, 1993).

WHY EDUCATIONAL PROGRAMS DO NOT PRODUCE BEHAVIOR CHANGE

Other Prevailing Social Influences

The failure of educational programs to produce short-term behavior change is quite understandable. Drinking, and drinking and driving, are lifestyle behaviors that are influenced and shaped by many societal factors and are not easy to affect through interventions consisting, for the most part, of brief one-time programs. As Ross (1992) has pointed out, alcohol-impaired driving is "... a predictable product of our social institutions, especially transportation and recreation"(p. 5). That is, Americans depend on the private automobile for transportation, and alcohol is accepted as appropriate and made available as part of a variety of social activities. According to Ross (1987), "In other words, drunk driving is a normal and predictable outcome of the institutionalization of drinking as a part of leisure and of the automobile as the unique mode of transportation in our North American societies. ... One not need search for personal peculiarities or moral defects among drunk drivers. On the whole, they are ordinary human beings ... who do what they have been taught to do and what is expected of them" (p. 476).

Some educational programs that have addressed several health behaviors (e.g., Project Alert) have had more success changing behaviors such as tobacco and marijuana use than alcohol use (Ellickson and Bell, 1990). The authors attribute this to the fact that "... drinking is an integral part of American social life, whereas smoking and marijuana use are considerably less common and less accepted (p. 1304)." The erosion in the modest, initial effects in regard to alcohol use were viewed by the authors as a result of the widespread prevalence of alcohol use, in society at large as well as in the schools participating in the study, and the consequent undermining of the curriculum messages about resisting pressures to drink. Isolated education and public information programs are thus apt to be overwhelmed by ongoing social forces, including the continual and immense barrage of alcohol advertising that basically normalizes and legitimizes alcohol and shapes the behavior of people beginning in elementary school (see Grube and Wallack, 1994; Madden and Grube, 1994).

The High-Risk-but-Hard-to-Reach Group

One other factor limiting the effect of alcohol education programs that attempt to influence drinking, or drinking and driving, is that those who contribute most to the problem and whom one

would therefore most like to influence, are among the least susceptible to behavior change through educational programs. Various studies, mostly of male populations, have noted the interrelationship among certain personality traits (rebelliousness, risk taking, independence, defiance of authority), deviant driving practices (speeding, drinking and driving), and crashes and violations. Deviant driving and crash involvement have also been found to be related to a syndrome of problem behavior including marijuana use, heavy alcohol use, smoking, trouble with the law, and various other delinquent behaviors (Cohen, 1955; Jessor, in press; Sobel and Underhill, 1976; McClelland, Wanner and Vanneman, 1972; Pelz and Williams, 1975). Among high school students, reported frequency of driving after drinking has been found to be associated with less time spent on homework and poorer academic performance, greater participation in social activities, less perceived parental influence regarding their travel, owning a car, and driving high mileage (Williams, Lund, and Preusser, 1986). The traits, values, and peer associations of this high risk subgroup are such that changing their behavior via educational programs is a difficult task.

There have been a few programs that have addressed this high risk subgroup, with varying success. In the 1970s, Waller and Worden (1975) carried out an well-planned educational campaign whose target population was young males in Vermont, who were predominantly of lower socioeconomic status and beer drinkers. The program succeeded in reaching this group via radio programs and other media outlets this group favored. The program increased young males' knowledge about alcohol and its effects, but measured effects on behavior were ambiguous and overall disappointing.

High school seniors, mostly males, were addressed in an extensive educational program in Michigan in the late 1960s (Schuman, McConochie, and Pelz, 1971). Drivers in the treatment group participated in seven two-hour discussion sessions, dealing with the effects of anger, frustration, and competition on driving; situational factors in driving and how to deal with them; traffic incidents (collisions, close calls, etc.) experienced by the participants; and examination of personal driving styles—their strengths and weaknesses and what changes might be needed. Discussions were facilitated by "trigger films" that depicted potentially dangerous driving situations aggravated by emotional factors, and by films of real traffic situations. Personalized letters were sent to each participant 6 and 12 months after the workshops, congratulating the drivers if they had recorded no crashes, or expressing concern if they had been in a crash. Crash rates of participants in the pilot phase of this program were lower, but not significantly so, than those of a comparison group over the subsequent two-year period. A follow-up, larger scale program, somewhat less intense than the pilot

(e.g., 6 hours of discussion rather than 14) did not find similar positive effects on crashes (Pelz and Williams, 1974).

The one educational program that by itself produced significant behavior change among high risk males was carried out at Lackland Air Force Base (Barmack and Payne, 1961). This study, now more than 30 years old, included educational messages that depicted driving after drinking as sick behavior. The program successfully reduced crashes, but most likely because some powerful administrative sanctions -- psychiatric referral or discharge -- were available for those who became involved in crashes.

In general, education and public information programs by themselves have not been able to change behavior in regard to drinking, or drinking and driving, in the short term. This conclusion applies to a large variety of programs, including those attempting to change attitudes or knowledge, those attempting to provide social skills to resist pressures to drink excessively or to drink and drive, and to the rare programs such as conducted in Michigan by Pelz and Schuman that attempted to effect lifestyle changes. Nevertheless, education and public information programs do have an important role to play in regard to alcohol-impaired driving.

EDUCATION IN SUPPORT OF LAWS

In this paper, the effects of laws and educational programs in changing behavior have been contrasted. However, educational programs and laws are not generally an either/or proposition. There is a problem only when educational approaches are promoted as the preferred way to produce short-term behavior change. This has not generally been an issue in the alcohol arena but has sometimes been the case in regard to seat belts and motorcycle helmets, for example. Some have argued for education over laws because of concerns about "individual rights" and "personal freedom." In other instances, it has been argued, wrongly, that education can increase the desired behavior as effectively as a law requiring use of seat belts or helmets (South Carolina Department of Public Safety, 1993; State of New Hampshire, 1990).

Educational programs and laws are compatible, and education and public information programs can maximize the effects of laws. A knowledgeable, informed public can provide support and impetus for the passage of laws, as was the case in the 1980s, when citizen activist groups such as MADD energized the country and made people aware of the tragedies resulting from alcohol-impaired driving (the "deglamorizing of the drunk as a likeable, humorous character," as Evans (1991, p. 352) puts it).

The general public as a result became more informed about the effects of alcohol-impaired driving and supported laws (although not necessarily the most effective kinds of laws) to combat this problem.

To the extent that the public becomes more aware that the problem is not exclusively, or even primarily, the result of extreme deviants (the "falling-down-drunk"), and that significant impairment routinely occurs at blood alcohol concentrations (BACs) far below 0.10 percent, this will provide support for laws limiting permissible BACs to below 0.10 percent. Education and public information, over time, are capable of producing this kind of consciousness-raising, but the notion that the problem really is one of alcohol-impaired driving which, as Ross (1987, p. 476) notes, makes it "... a massive phenomenon involving nearly all drinkers to some degree" is not consistently presented to the public and is obscured or compromised in messages provided in some education programs and alcohol advertising promoting "moderation."

Education and public information programs can transmit knowledge about the existence of laws, their provisions, and their penalties, in ways that increase their deterrent effect. There are many examples of this successful interaction. In Wisconsin, for example, a law mandating three to six months license suspension for first-time convicted drinking drivers was associated with a reduction in alcohol-related crashes; this law was aided by a public information campaign that increased public awareness that license suspension was "guaranteed" following a drinking and driving conviction and also increased the perception of enforcement (Preusser, Blomberg, and Ulmer, 1988). A television, radio, and print public information and education campaign in Maryland successfully communicated to people under age 21 the existence and nature of the 0.02 BAC law applying to them, and the law's penalties. By itself, the law had a positive effect in reducing alcohol-related crashes; this effect was enhanced by the addition of the public information and education activities (Blomberg, 1992).

Enforcement campaigns related to alcohol-impaired driving have been made more effective when paired with educational/public information campaigns that educate the public on the importance of enforcement, and that lead to public support for strong enforcement. The heightened attention to alcohol-impaired driving in the 1980s resulted in many more laws but, just as important, provided impetus for strengthened law enforcement. Prior to the 1980s, there were already many laws on the books pertaining to alcohol-impaired driving, but their application was limited. In Great Britian's 1983 "Christmas Crusade" against drunk drivers (Ross, 1987), the Clearwater/Largo, Florida, enforcement program (Lacey et al., 1986), and the Binghamton, New York program (Wells, Preusser, and Williams, 1992) that addressed both seat belt use and alcohol-impaired driving, education and public information about the existence of stepped-up enforcement and the reasons why conformance to

laws against alcohol-impaired driving was important from a health standpoint, were important components. There is also evidence that educational programs, as part of a broad-based community intervention including law enforcement components, can lead to positive changes in regard to alcohol use (Hingson et al., 1993).

It is important to note that when public information/education about laws or their enforcement is limited, the deterrent effect of the law is also likely to be limited or absent. For example, when Ontario enacted a 12-hour suspension law in 1981 for drivers with BACs of 0.05 percent or greater, surveys revealed that many people did not know the provisions of the law or its penalty, and the law's deterrent effect was slight (Vingilis et al., 1988). Similarly, a four-week alcohol enforcement checkpoint blitz in British Columbia in 1984, involving 13,920 police hours, was minimally publicized. Some Vancouver newspapers were on strike for the entire four-week period, and most of the public were not aware of the enforcement. There were no positive changes in measures related to drinking and driving resulting from the blitz (Mercer, 1985).

EDUCATION AS A MEANS OF COMMUNICATING KNOWLEDGE

In addition to supporting the implementation of laws, educational/public information programs are also important for improving the public's substantive knowledge about drinking, and drinking and driving, in general. Misinformation about alcohol can be dangerous and supportive of potentially harmful behavior. For example, Waller and Worden (1975) found that many young males believed that it takes about three beers to equal one shot of liquor, and that consumption of a six-pack of beer still permits safe driving. High school students have also been found to hold these beliefs: About one-quarter of students surveyed in a 75-school survey estimated that six or more cans of beer would be required to make someone an unsafe driver (Williams, Lund, and Preusser, 1986). Education can impart correct information on this and other issues, and programs that have not been successful at changing attitudes or behavior have typically produced knowledge gains (see, e.g., Mcknight et al. 1979). However, it is apparently not the case that such knowledge gains are then immediately translated into appropriate actions, e.g., driving less often after heavy beer consumption, but certainly a better basis for appropriate action (including passage of appropriate laws) is achieved if people are correctly informed about alcohol use and its consequences.

OTHER TARGETS OF EDUCATION

Education/information programs discussed thus far are primarily those targeting at-risk individuals, but it is not necessary to approach this group directly in attempting to effect changes in their behavior. For example, in the high school setting, peer intervention training has shown promise as a means of getting students to intervene in the drinking and driving of their associates (McKnight and McPherson, 1986). Others who have some influence over at-risk individuals, for example, sellers and servers of alcohol can be targeted through educational/information programs, and research evidence is beginning to show that server intervention programs can have an effect in reducing excessive consumption (McKnight, 1991; McKnight and Streff, 1994). Finally, targeting key decision makers through educational/information efforts may facilitate laws or environmental changes that may have large implications for reducing alcohol-impaired driving. This includes a wide range of such decision makers, including government administrators and legislators, automobile manufacturers, managers/owners of alcohol-serving and selling establishments, school administrators, and police who function as gatekeepers in law enforcement (see Simons-Morton, 1988).

EDUCATION AND SOCIAL NORMS

The desirability of changing social norms in regard to drinking, and drinking and driving, has been noted by many observers. Simons-Morton (1988) points out that, "The task of educating at-risk individuals to moderate their drinking and to not drink and drive might be much easier if the prevailing social norms supported such moderation" (p. 82). Evans (1991) concludes that "... the largest potential gains in traffic safety can be achieved by encouraging and stimulating changes in the social norms related to driving towards practices more conducive to safety, and away from practices inimical to safety" (p. 355). Moskowitz (1989) puts it in perspective:

> "The failure of primary prevention programs is not surprising given the widespread availability of alcohol and the important role it plays within our society. In the long run, such programs might have greater impact on alcohol-related problems if, instead of trying to change the attitudes, skills and behavior of individuals, their primary objective was to change social norms ... If one could create a social environment where positive social influences regarding alcohol use predominated, then there would be little need to attempt the difficult task of trying to train the ultimate social animal to resist social influence as is currently in vogue in many 'just say no' - type prevention programs" (p. 78).

Just how one influences norms is not so clear. Can changes in social norms be manufactured over time through educational and informational inputs? Proponents of this notion hold up tobacco use as an example that this can be accomplished. As Evans (1991) argues, "A specific set of advertisements aimed at reducing smoking is unlikely to generate any observable effect, yet ... behavior changes stimulated in large measure by information the public received through the mass media, accumulated over a 25-year period, have been large (p. 355)". There are differences in regard to social control on alcohol and tobacco use (e.g., smokers bother and can be a health hazard to nonsmokers), which create additional sources of pressure to moderate the behavior, including restriction on smoking in places where this behavior would ordinarily occur. However, it is clear that social norms regarding alcohol use have shown change in the last two decades. For education advocates, it is an article of faith -- not verifiable through scientific research -- that individual programs that do not have any measurable short-term effect on behavior nevertheless are part of the mix that will contribute to desired behavior changes in the longer-term.

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